



Industrial Macromolecular Crystallography Association CAT

Overview

The Industrial Macromolecular Crystallography Association (IMCA) is a consortium of crystallographic groups from 12 companies with major pharmaceutical research laboratories in the United States. IMCA-CAT comprises both IMCA and the Center for Synchrotron Radiation Research (CSRRI) at the Illinois Institute of Technology. The 12 corporate members of IMCA are Abbott Laboratories; Bristol-Myers Squibb Pharmaceutical Research Institute; Glaxo Wellcome Research Institute; Eli Lilly and Company; Merck and Company, Incorporated; Monsanto / Searle; Pfizer Pharmaceuticals; Pharmacia and Upjohn, Incorporated; The Procter and Gamble Company; Schering-Plough Research Institute; SmithKline Beecham Pharmaceuticals; and Three-Dimensional Pharmaceuticals. IMCA-CAT is unusual in that a large fraction of research conducted by CAT members is expected to be proprietary. Member scientists function as competitors in the discovery research that arises from their data-collection efforts; however, they collaborate in methods development and collectively fund the operation of the beamlines.

Research Focus

Macromolecular crystallography is the primary research focus for IMCA, with the ultimate objective of facilitating the process of rational drug design. Traditional drug design methods involve testing thousands of compounds to determine biological activity. Rational drug design research attempts to elucidate biological processes in detail, which depends heavily on detailed knowledge of the atomic structure of the molecules involved. IMCA-CAT's insertion-device beamline is designed primarily for monochromatic and multiwavelength anomalous diffraction (MAD) experiments on small (<80 micrometer) protein crystals over an energy range of 6 to 20 keV. The bending-magnet line is designed mostly for monochromatic and MAD experiments on somewhat larger protein crystals over a similar energy range.

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